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10/583,365

06/19/2006

Shunpei Yamazaki

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6856

31780

7590

07/29/2008

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EXAMINER

BELOUSOV, ALEXANDER

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/583,365	<b>Applicant(s)</b> YAMAZAKI ET AL.	
	<b>Examiner</b> ALEXANDER BELOUSOV	<b>Art Unit</b> 2894	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 5-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :06/19/2006, 09/05/2006 & 03/17/2008.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election with traverse of claims 1-4 & 8-14 in the reply filed on 06/16/2008 is acknowledged. The traversal is on the grounds that "the claims 5-7 are not included in any species outlined in the election requirement". This is not found persuasive because these are not valid grounds for traversal of restriction. The requirement is still deemed proper and is therefore made **FINAL**.

**Claims 5-7** are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, the requirement having been traversed on 06/16/2008.

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on 06/19/2006, 09/05/2006 & 03/17/2008. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claim(s) 1-4 & 8-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over (US-6509217) by Reddy in view of (US-2001/0038127) by Yamazaki et al ("Yamazaki").

**Regarding claim 1**, Reddy discloses in FIG. 3 and related text, **e.g.**, a semiconductor device comprising:

a substrate (10),  
an integrated circuit including a thin film transistor (column 10, lines 8-10),  
an antenna having a conducting wire (88, 96 & 92), and wherein the integrated circuit and the antenna are formed over the substrate to be electrically connected to each other (they are connected to each other).

Reddy does not disclose an insulating film over the conducting wire, and fine particles of a soft magnetic material are included in the insulating film.

Yamazaki discloses in FIG. 4A and related text, **e.g.**, an insulating film (215) and fine particles of a soft material (214; gold) are included in the insulating film.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Reddy with via 108/110 made of an insulating film and fine particles of a soft material are included in the insulating film, wherein the material is iron, in order to simplify the processing steps of making the device (the vias 108/110 of Reddy are made by filling metal into via holes; replacing the metal with conductive resin of Yamazaki would simplify the processing steps involved, since curing conductive resin is much simpler than depositing metal), and in order to reduce the cost of materials (replacing gold conductive particles with iron conductive particles would obviously result in large reduction in cost), respectively.

When the device of Reddy is modified with “via 108/110 made of an insulating film and fine particles of a soft material are included in the insulating film, wherein the material is iron”, it will result in “an insulating film (108 would be that film) over the conducting wire, and fine particles of a soft **magnetic** material (iron) are included in the insulating film”.

**Regarding claim 2**, Reddy discloses in FIG. 3 and related text, **e.g.**, a semiconductor device comprising:

a substrate (10),  
an integrated circuit including a thin film transistor (column 10, lines 8-10),  
an antenna having a conducting wire (88, 96 & 92), and wherein the integrated circuit and the antenna are formed over the substrate to be electrically connected to each other (they are connected to each other).

Reddy does not disclose a resin film over the conducting wire, and fine particles of a soft magnetic material are included in the resin film.

Yamazaki discloses in FIG. 4A and related text, **e.g.**, a resin film (215) and fine particles of a soft material (214; gold) are included in the resin film.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Reddy with via 108/110 made of a resin film and fine particles of a soft material are included in the resin film, wherein the material is iron, in order to simplify the processing steps of making the device (the vias 108/110 of Reddy are made by filling metal into via holes; replacing the metal with conductive resin of Yamazaki would simplify the processing steps involved, since curing resin is much simpler than depositing metal), and in order to reduce the cost of materials (replacing gold conductive particles with iron conductive particles would obviously result in large reduction in cost), respectively.

When the device of Reddy is modified with “via 108/110 made of a resin film and fine particles of a soft material are included in the resin film, wherein the material is iron”, it will

result in “a resin film (108 would be that film) over the conducting wire (88, 96 & 92), and fine particles of a soft **magnetic** material (iron) are included in the resin film”.

**Regarding claim 3**, Reddy discloses in FIG. 3 and related text, **e.g.**, a semiconductor device comprising:

- a substrate (10),
- an integrated circuit including a thin film transistor (column 10, lines 8-10),
- an antenna having a conducting wire (88, 96 & 92),
- a first insulating film (104) covering the conducting wire and the thin film transistor, and

wherein the integrated circuit and the antenna are formed over the substrate to be electrically connected to each other (they are connected to each other).

Reddy does not disclose a second insulating film over the first insulating film covering the conducting wire, and fine particles of a soft magnetic material are included in the second insulating film.

Yamazaki discloses in FIG. 4A and related text, **e.g.**, a second insulating film (215) and fine particles of a soft material (214; gold) are included in the second insulating film.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Reddy with via 108/110 made of a second insulating film and fine particles of a soft material are included in the second insulating film, wherein the material is iron, in order to simplify the processing steps of making the device (the vias 108/110 of Reddy are made by filling metal into via holes; replacing the metal with conductive resin of Yamazaki would simplify the processing steps involved, since curing conductive resin is much simpler than depositing metal), and in order to reduce the cost of materials (replacing gold conductive

particles with iron conductive particles would obviously result in large reduction in cost), respectively.

When the device of Reddy is modified with “via 108/110 made of a second insulating film and fine particles of a soft material are included in the second insulating film, wherein the material is iron”, it will result in “a second insulating film (108 would be that film) over the first insulating film (104; 108 is in direct contact with it; hence, “over”) covering the conducting wire, and fine particles of a soft **magnetic** material (iron) are included in the second insulating film”.

**Regarding claim 4**, Reddy discloses in FIG. 3 and related text, **e.g.**, a semiconductor device comprising:

- a substrate (10),
- an integrated circuit including a thin film transistor (column 10, lines 8-10),
- an antenna having a conducting wire (88, 96 & 92),
- an insulating film (104) covering the conducting wire and the thin film transistor (it is in direct contact with both), and wherein the integrated circuit and the antenna are formed over the substrate to be electrically connected to each other (they are connected to each other).

Reddy does not disclose a resin film over the insulating film covering the conducting wire, and fine particles of a soft magnetic material are included in the resin film.

Yamazaki discloses in FIG. 4A and related text, **e.g.**, a resin film (215) and fine particles of a soft material (214; gold) are included in the resin film.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Reddy with via 108/110 made of a resin film and fine particles of a soft material are included in the resin film, wherein the material is iron, in order to simplify the



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processing steps of making the device (the vias 108/110 of Reddy are made by filling metal into via holes; replacing the metal with conductive resin of Yamazaki would simplify the processing steps involved, since curing resin is much simpler than depositing metal), and in order to reduce the cost of materials (replacing gold conductive particles with iron conductive particles would obviously result in large reduction in cost), respectively.

When the device of Reddy is modified with “via 108/110 made of a resin film and fine particles of a soft material are included in the resin film, wherein the material is iron”, it will result in “a resin film (108 would be that film) covering the conducting wire (88, 96 & 92), and fine particles of a soft **magnetic** material (iron) are included in the resin film”.

**Regarding claim 8**, Reddy discloses in FIG. 3 and related text, **e.g.**, a semiconductor device comprising:

a substrate (10),

an integrated circuit including a thin film transistor (column 10, lines 8-10),

an antenna having a conducting wire (88, 96 & 92),

a first insulating film (104) covering the conducting wire and the thin film transistor (it is in direct contact with both), and a second insulating film at least adjacent to a side of the conducting wire by interposing the first insulating film therebetween,

wherein the integrated circuit and the antenna are formed over the substrate to be electrically connected to each other (they are connected to each other).

Reddy does not disclose a second insulating film at least adjacent to a side of the conducting wire by interposing the first insulating film therebetween, and fine particles of a soft magnetic material are included in the second insulating film.

Yamazaki discloses in FIG. 4A and related text, **e.g.**, a second insulating film (215) and fine particles of a soft material (214; gold) are included in the second insulating film.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Reddy with via 108/110 made of a second insulating film and fine particles of a soft material are included in the second insulating film, wherein the material is iron, in order to simplify the processing steps of making the device (the vias 108/110 of Reddy are made by filling metal into via holes; replacing the metal with conductive resin of Yamazaki would simplify the processing steps involved, since curing conductive resin is much simpler than depositing metal), and in order to reduce the cost of materials (replacing gold conductive particles with iron conductive particles would obviously result in large reduction in cost), respectively.

When the device of Reddy is modified with “via 108/110 made of a second insulating film and fine particles of a soft material are included in the second insulating film, wherein the material is iron”, it will result in “a second insulating film (108 would be that film) at least adjacent to a side of the conducting wire (88, 96 & 92) by interposing the first insulating film (104) therebetween, and fine particles of a soft **magnetic** material (iron) are included in the second insulating film”.

**Regarding claim 9**, Reddy discloses in FIG. 3 and related text, **e.g.**, a semiconductor device comprising:

a substrate (10),

an integrated circuit including a thin film transistor (column 10, lines 8-10),

an antenna having a conducting wire (88, 96 & 92),

an insulating film (104) covering the conducting wire and the thin film transistor (it is in direct contact with both),

wherein the integrated circuit and the antenna are formed over the substrate to be electrically connected to each other (they are connected to each other).

Reddy does not disclose a resin film at least adjacent to a side of the conducting wire by interposing the insulating film therebetween, and fine particles of a soft magnetic material are included in the resin film.

Yamazaki discloses in FIG. 4A and related text, **e.g.**, a resin film (215) and fine particles of a soft material (214; gold) are included in the resin film.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Reddy with via 108/110 made of a resin film and fine particles of a soft material are included in the resin film, wherein the material is iron, in order to simplify the processing steps of making the device (the vias 108/110 of Reddy are made by filling metal into via holes; replacing the metal with conductive resin of Yamazaki would simplify the processing steps involved, since curing resin is much simpler than depositing metal), and in order to reduce the cost of materials (replacing gold conductive particles with iron conductive particles would obviously result in large reduction in cost), respectively.

When the device of Reddy is modified with “via 108/110 made of a resin film and fine particles of a soft material are included in the resin film, wherein the material is iron”, it will result in “a resin film (108 would be that film) at least adjacent to a side of the conducting wire (88, 96 & 92) by interposing the insulating film (104) therebetween, and fine particles of a soft **magnetic** material (iron) are included in the resin film”.

**Regarding claim 10**, Reddy discloses in FIG. 3 and related text, **e.g.**, the integrated circuit and the antenna are formed over a flexible substrate (column 17, lines 4 & 5).

**Regarding claim 11**, Reddy discloses in FIG. 3 and related text, **e.g.**, the conducting wire (88, 92 & 96).

Regarding the process limitations recited in claim 11 (“formed by an electroplating method, an electroless plating method, a printing method, or a droplet discharging method”), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced.

Note that a “product by process” claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al.*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a “product by process” claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in “product by process” claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

**Regarding claim 12**, Reddy discloses in FIG. 3 and related text, **e.g.**, the conducting wire (88, 92 & 96) includes a first conductor (92) and a second conductor (96) covering the first conductor.

**Regarding claim 13**, Reddy discloses in FIG. 3 and related text, **e.g.**, the second conductor (96).

Regarding the process limitations recited in claim 13 (“formed by an electroplating method, an electroless plating method, or a droplet discharging method”), these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced.

Note that a “product by process” claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al.*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a “product by process” claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in “product by process” claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

**Regarding claim 14**, the combination of Reddy and Yamazaki discloses the soft magnetic material is Fe; Co; Ni; an alloy including at least one of Fe, Co, and Ni;  $3Y2O3.5Fe2O3$  (YIG);  $Fe2O3$ ; Fe-Si-Al alloy; Fe-Cr alloy; FeP alloy; a permalloy in which Ni or Ni-Fe alloy is added with at least one of Mo, Cu, Cr, and Nb; or a soft ferrite (see rejection of claims 1-4, 8 & 9).

### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References A-M are cited as being related to the semiconductor devices.
2. Any inquiry concerning this communication or earlier communications from the

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examiner should be directed to Alexander Belousov whose telephone number is 571-270-3209.

The examiner can normally be reached on Monday - Thursday 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on 571-272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alexander Belousov/  
Examiner, Art Unit 2894  
07/24/2008

/THANH Van PHAM/  
Primary Examiner, Art Unit 2894